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(71) Applicant(s)  
Concept Packaging Ltd  
(Incorporated in the United Kingdom)  
Bradbeck Road, Lidget Green, BRADFORD, BD7 2NX,  
United Kingdom

(72) Inventor(s)  
Christopher Hallam

(74) Agent and/or Address for Service  
Appleyard Lees  
15 Clare Road, HALIFAX, West Yorkshire, HX1 2HY,  
United Kingdom

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(56) Documents Cited  
GB 2298855 A GB 2038276 A  
GB 1600479 A EP 1000866 A2  
WPI A.A.N: 1980-B2160C [06] & EP 0007539 A1  
WPI A.A.N: 1983-771577 [39] & DE 3208682 A1.

(58) Field of Search  
UK CL (Edition S ) B8D DCA2 , B8P PE3 PJ  
INT CL<sup>7</sup> B65D 3/22  
ONLINE: WPI EPODOC JAPIO

## (54) Abstract Title

**A tubular carton sleeve formed of a laminate of two offset sheets and method of overlapping to assemble sleeve with seam of reduced thickness**

(57) A tubular carton sleeve comprises a laminate of two offset sheets providing inner and outer walls 4, 6 of the sleeve. The sleeve is assembled by rolling up the laminate such that ends 22, 14 of the inner wall 4 are in a face to face relationship with each other, and ends 20, 28 of the outer wall are in a face to face relationship with each other. In this manner, the seam may be of reduced thickness, for example, generally three sheets thick as opposed to the four sheets thickness which might be present without an offset. This may reduce distortion in the cross-section of the tube and allow better mating with any top or bottom lids added to the sleeve. A groove and tongue arrangement 8, 34 may be present at ends of the sleeve. A series of square sections (24, fig.2) on the outer wall 6 may fold over onto the inner wall 4 of the sleeve at one end thereof to provide a reinforcement that may allow the sleeve to stand upright on its own.

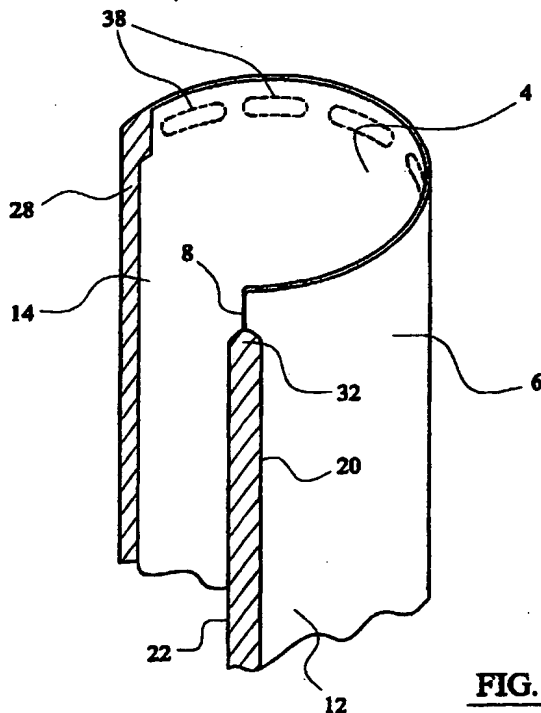


FIG. 3

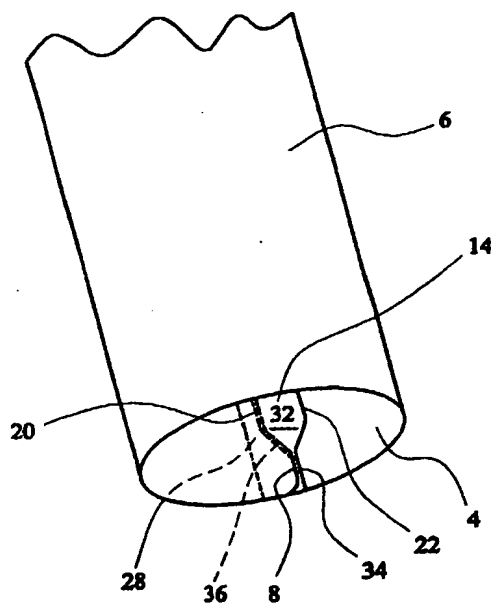


FIG. 4

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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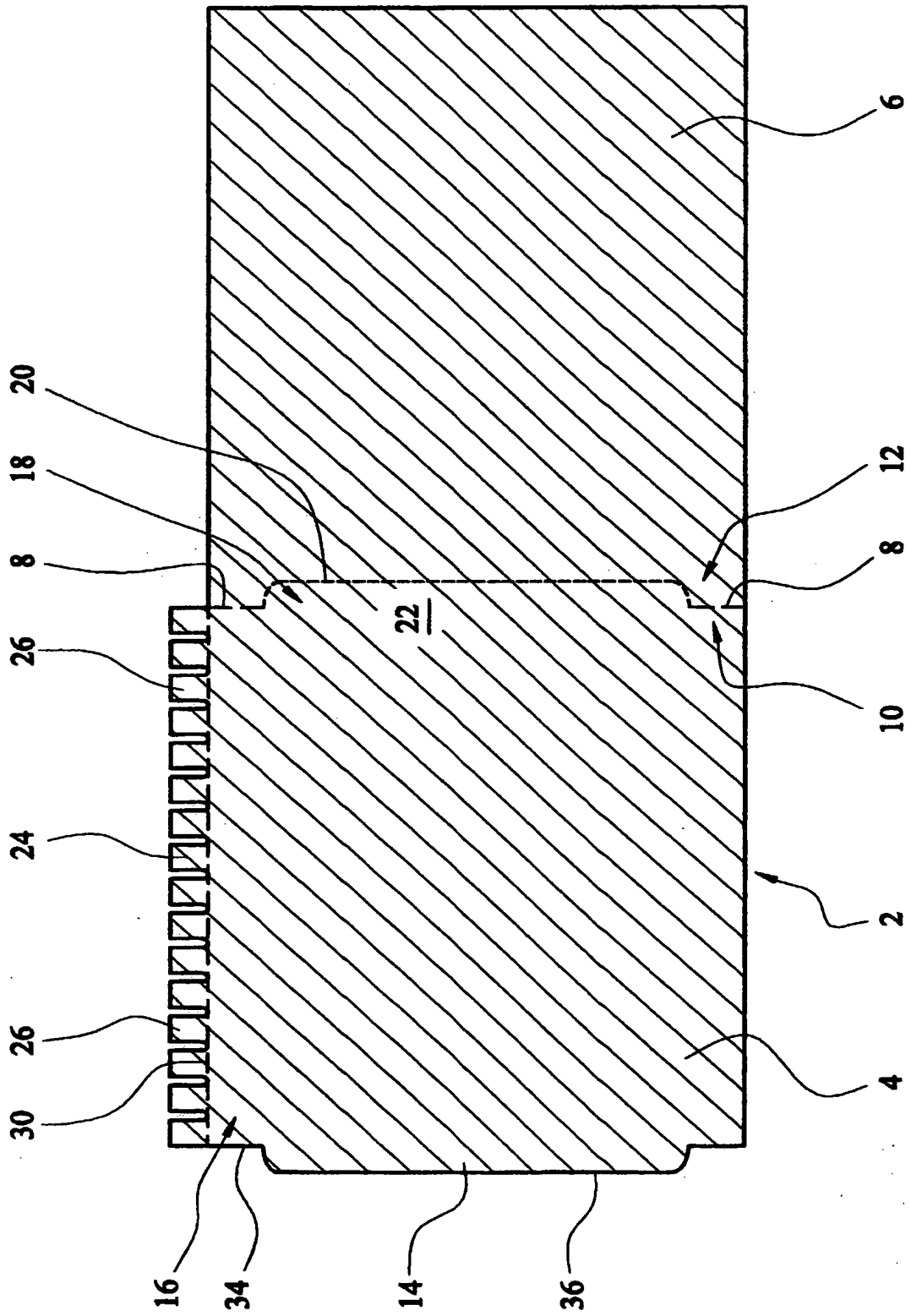


FIG. 1

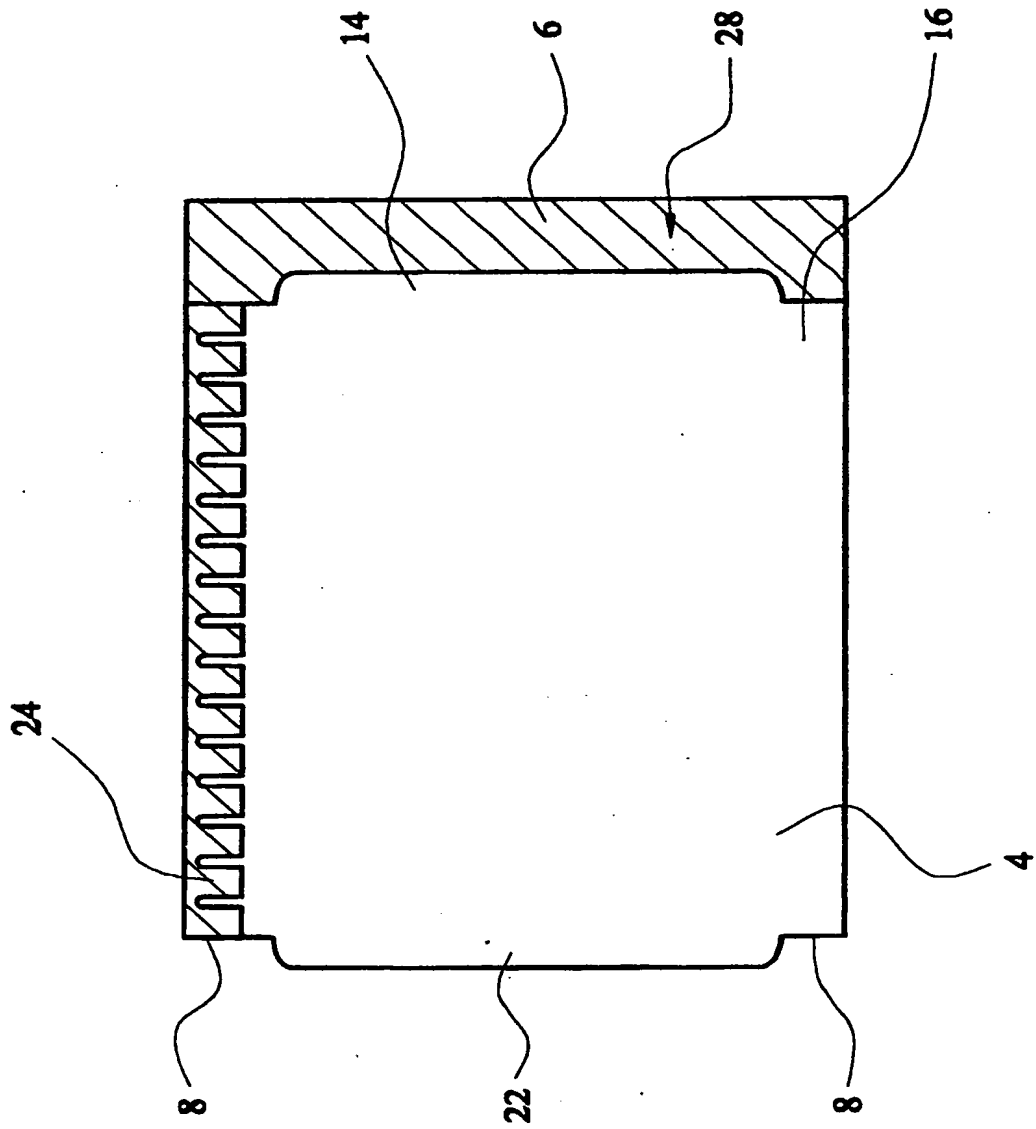
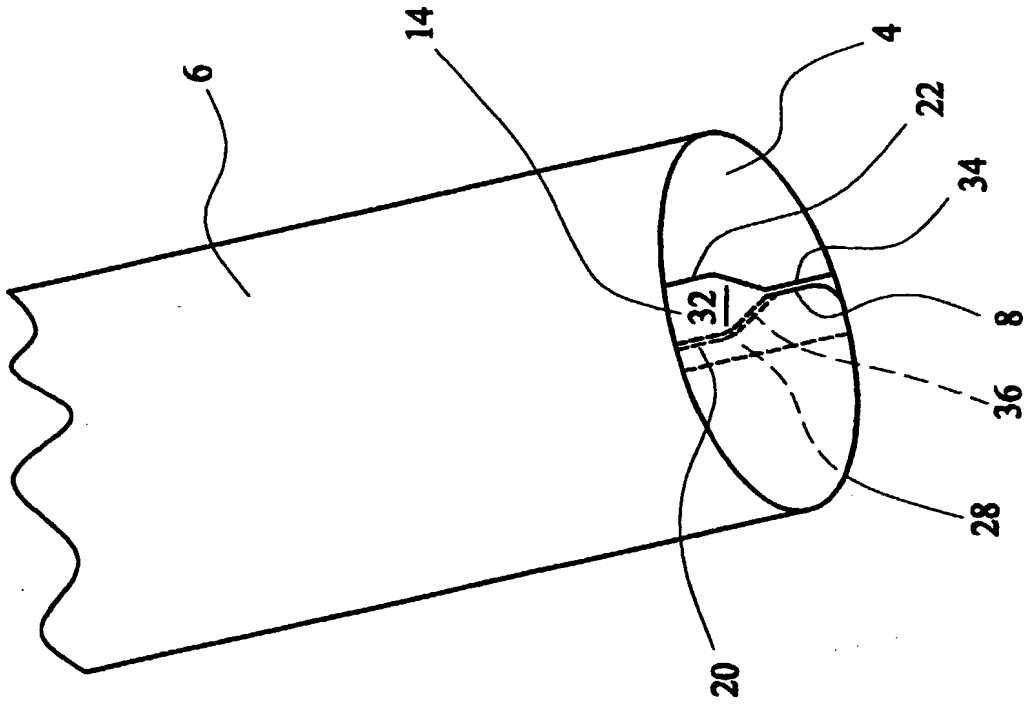
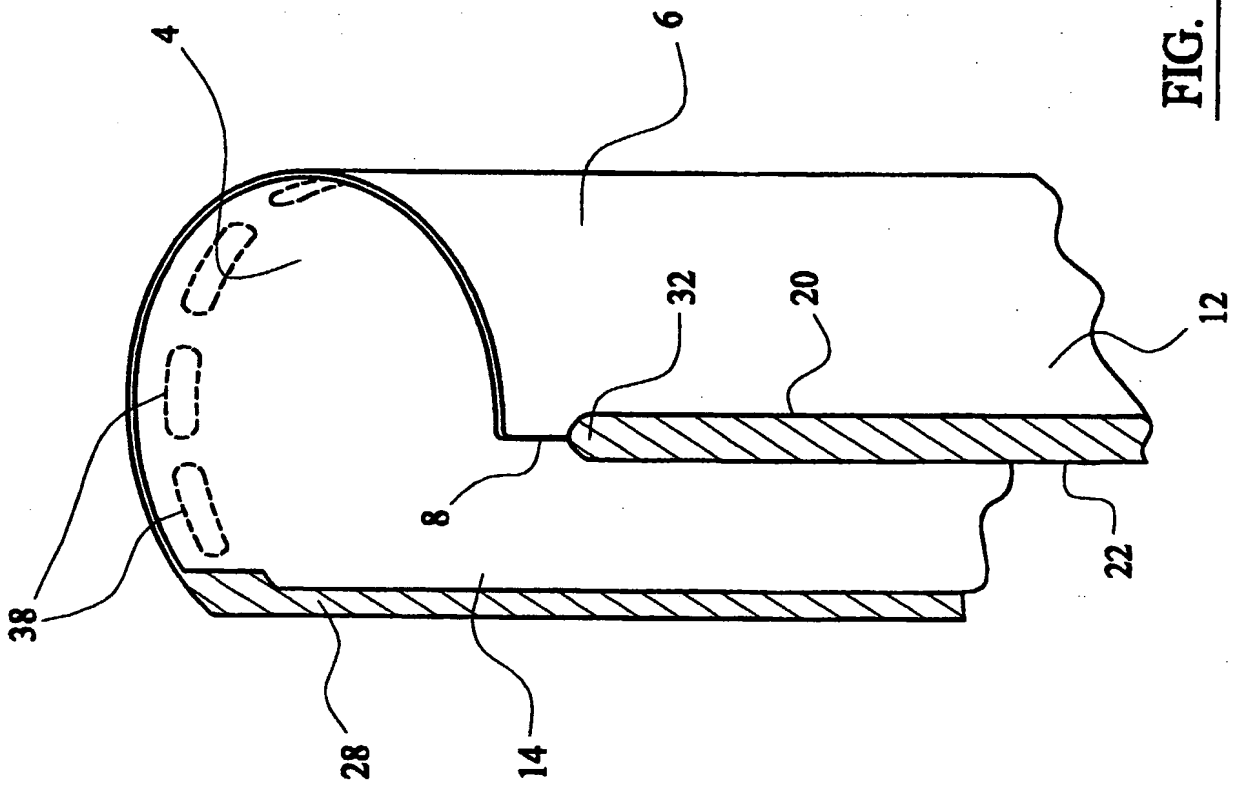


FIG. 2



**FIG. 4**



**FIG. 3**

## IMPROVEMENTS IN AND RELATING TO TUBULAR CARTONS

## Field of the Invention

5 The present invention relates to tubular cartons.

## Background of the Invention

10 Tubular cartons made from card, and the like, have been in use for many years. There are a variety of different ways of forming the sleeve of a tubular carton, and cartons produced by helically winding a strip of cardboard around a former have been in use for many years.

15 In order to make manufacture easier and cheaper, the carton sleeve has more recently been made from a flat blank that is rolled to form the sleeve.

20 European patent application number 0 007 539 A1 discloses a tubular carton sleeve made from an inner and outer layer of material, the inner layer being narrower than the outer layer, but both layers being the same length.

25 The inner layer is superimposed on the outer layer slightly off set of the outer layer, such that a proportion of the end of the inner layer protrudes past the end of the outer layer and a corresponding proportion of the outer layer protrudes past the other end of the inner layer.

30

The longitudinal edges of the outer layer are folded over the narrower inner layer, to provide a neat finish to the ends of the sleeve. The thus joined sheets are then

rolled to form the sleeve. The protruding section of inner layer forms a tab which is secured to the inner surface of the protruding section of the outer layer, and thus the ends of the sheets are joined together to form  
5 the sleeve.

UK patent application number GB -A- 2 038 276 discloses an alternative means of joining the edges of a tubular carton sleeve.

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The blank of GB -A- 2 038 276 is produced from a single layer of cardboard material, which is folded to provide a double layered wall of the sleeve. The fold line of the blank is slightly offset from the centre of the sheet, so  
15 that when the sheet is folded one end of the sheet protrudes past the other end of the sheet to form a tab.

The folded sheet is then rolled to form a tube and the tab overlaps the folded edge of the sheet to form a join. End  
20 closures are applied to each end of the sleeve using a conventional rim rolling method. However, when the end closures are attached to the ends of the sleeve the increased thickness of the tube in the region of the join causes the material to distort.

25

In order to overcome this problem, a notch is removed from the edge of the blank in the region of the join. Therefore, when the blank is rolled and joined there is the same thickness of material all the way round the end  
30 of the sleeve in the region of application of the end closure, as in a corresponding sleeve and tubular carton.

It is an aim of preferred embodiments of the present invention to provide an alternative blank for forming a sleeve of a tubular carton, and a corresponding sleeve and tubular carton.

5

#### **Summary of the Invention**

The present invention provides a tubular carton sleeve comprising a first sheet superimposed at least in part on  
10 a second sheet, said first sheet providing an inner wall of said sleeve and said second sheet providing an outer wall of said sleeve, first and second opposing "ends" of said first and second sheets being interengaged to provide a join, wherein at said join, the first end of said inner  
15 wall is in a face to face relationship with the second end of said inner wall and the first end of said outer wall is in a face to face relationship with the second end of said outer wall.

20 Suitably, the inner wall at the first end comprises a first marginal flange extending along a portion of the edge thereof.

Suitably, the inner wall at the second end comprises a  
25 second marginal flange extending along a portion of the edge thereof.

Suitably, the second ends of the first sheet and the second sheet are connected together by means of a fold  
30 line. In this case, the second marginal flange of the inner wall may be provided by a cut out section of the outer wall extending along a portion of the fold line.

Suitably, the shape and dimensions of the first marginal flange corresponds with the shape and dimensions of the cut out section of the outer wall. In this case, when the ends of the sheets are interengaged to form the join, the first marginal flange suitably fits into the cut out section of the outer wall and the edge of the first marginal flange abuts the cut edge of the outer wall.

Suitably, the section of the edge of the first end of the inner wall which does not comprise the first marginal flange abuts the section of the edge of the second end of the inner wall which does not comprise the second marginal flange, when the ends of the sheets are interengaged.

If the second ends of the first and second sheets are joined together by a fold line, the edge of the first end of the inner wall, suitably abuts the fold line dividing the inner and outer wall, when the ends of the sheets are joined together.

Suitably, the first and second marginal flanges extend along the majority of the length of the edges of the first and second ends of the inner wall.

Suitably, when the ends of the first and second sheets are joined together to form the sleeve, the internal surface of the second marginal flange is in face to face relationship with the external surface of the inner wall.

Suitably, when the first and second sheets are superimposed on one another, the first end of the second sheet extends beyond the first end of the first sheet.



Suitably, the first end of the second sheet extends beyond the first marginal flange.

When the first and second sheets are joined together to form the sleeve, the section of the outer wall which extends beyond the inner wall is suitably in a face to face relationship with the second end of the outer wall. Suitably, the interior surface of the first end of the outer wall is in face to face relationship with the exterior surface of the second end of the outer wall.

Suitably, the first and second sheets are substantially the same length. However, the first and second sheets may have different lengths, for example, in order to provide a means of neatening the ends of the sleeve.

The first and/or second sheet may comprise a further marginal flange extending along at least part of the longitudinal edge thereof. The further marginal flange may be folded over during assembly of the sleeve in order to neaten the end of the sleeve.

Furthermore, a further marginal flange may be provided along at least part of the longitudinal edge of the first and/or second sheet in order to provide a protrusion upon which a base can rest.

The further marginal flanges may be provided by a single continuous tab. Alternatively, the further marginal flanges may be provided by a series of smaller tabs, spaced apart from one another. The tabs may be generally rectangular or square in shape. Alternatively, the tabs may be generally triangular in shape.

Alternatively, a protrusion upon which a base may rest, may be provided by one or more cut-out sections in the inner wall of the sleeve. Suitably, the cut-out sections  
5 providing the base rest are located in the region of an end of the sleeve. Suitably, the cut-out sections providing the base rest are generally longitudinal in shape. Suitably, the cut-out sections providing the base rest extend about a substantial length of the inner  
10 periphery of the sleeve.

The present invention further provides a tubular carton comprising a tubular carton sleeve in accordance with the present invention.

15

The join may be provided by interengaging the first and second ends of the inner wall and the first and second ends of the outer wall in any suitable manner. The ends may be fixedly interengaged. Alternatively, the ends may  
20 be removeably engaged. The ends may be adhered to one another.

The present invention advantageously provides a tubular carton sleeve comprising a maximum overlap of only three  
25 layers of material at any point of the join.

The crossover of the first and second ends of the inner wall improves the strength of the join.

30 The present invention provides a join having a narrower join area along the length of the container, thereby reducing the distortion of the sleeve from a round cross sectional shape.

Longitudinal weakening lines may be provided at intervals around the periphery of the sleeve, to aid curving of the sleeve. Suitably, the weakening lines do not overlie the  
5 join region.

### Brief Description of the Drawings

Figure 1 is a schematic plan view of a sleeve blank shown  
10 from the inner side, in an unfolded condition;

Figure 2 is a schematic plan view of the blank of figure 1 in a folded condition;

15 Figure 3 is a schematic perspective view of part of the blank of figures 1 and 2 in a partially rolled configuration, and

Figure 4 is a schematic perspective view of part of the  
20 blank of figures 1, 2 and 3 in the form of a sleeve.

### Description of the Preferred Embodiment

Figure 1 shows the interior surface of the blank 2. The  
25 blank 2 comprises an inner wall 4 and an outer wall 6, joined together at the second ends thereof, 10 and 12 respectively, by a fold line 8 (illustrated by a broken line).

30 The inner wall 4 comprises a first flange 14 provided at a first end 16 of said inner wall 4. The inner wall 4 comprises a second flange 18 provided by a cut out section 22 of the outer wall 6. The cut-out line of the outer

wall 6, which provides the cut out section 22 is indicated in figure 1 by dotted line 20.

5 The inner wall 4 further comprises a further marginal flange 24, provided by a plurality of squares 26 longitudinally spaced from one another along the length of a longitudinal edge of the inner wall 4.

10 Figure 2 illustrates the blank of figure 1 in a folded condition. The blank is folded along fold line 8, so that the interior surface of the inner wall 4 is superimposed over at least part of the interior surface of the outer wall 6.

15 In the figures, the interior surface of the blank is indicated by the hatched areas and the exterior surface of the blank is indicated by the areas of the blank having no shading.

20 As can be seen from figure 2, when the inner wall 4 is superimposed on the outer wall 6 by folding along the fold line 8, the interior surface of the inner wall 4 contacts the interior surface of the outer wall 6.

25 Folding the blank 2 along the fold line 8, causes the cut out section of the outer wall 6 to be separated from the outer wall 6 and form the second flange 22 of the inner wall.

30 When the blank is folded along the fold line 8, the first end 28 of the outer wall 6 extends beyond the first flange 14 of the first end 16 of the inner wall 4.

The further marginal flange 24 of the inner wall 4 is folded along the fold line 30 (indicated by a broken line), such that exterior surface of the further marginal flange 24 contacts the exterior surface of the inner wall 4.

The further marginal flange 24 may be adhered to the inner wall 4 to provide a base rest of a container comprising a sleeve produced from the blank 2.

Figures 3 and 4 show the blank of figures 1 and 2 without the marginal flange 24 (for ease of explanation).

In order to make the blank into a sleeve for a tubular carton, the blank in the folded condition shown in figure 2, is rolled to bring the first ends 14, 28 of the inner wall 4 and the outer wall 6 towards the second ends 10, 12 of the inner wall 4 and the outer wall 6 towards one another.

When the first and second ends 16, 28, 10, 12 of the inner 4 and outer 6 walls are contacted to form the join (as shown in figure 4):

the first flange 14 of the inner wall fits into the cut out space 32 of the outer wall 6, which cut out space 32 is produced once the second flange 22 is created by folding the blank along fold line 8. Therefore, the exterior surface of the first flange 14 contacts the interior surface of the second end 10 of the inner wall 4;

the interior surface of the first end 28 of the outer wall 6 overlaps the exterior surface of the second end 12 of the outer wall 6;

- 5 the interior surface of the second flange 22 contacts the exterior surface of the first end 16 of the inner wall 4;

the fold line 8 abuts the edge 34 of the first end 16 of the inner wall 4, and

10

the edge 36 of the first flange 14 abuts the cut edge 20 of the outer wall 6, which cut edge 20 provides the second flange 22 of the inner wall 4.

- 15 As an alternative to the further marginal flange 24 provided by squares 26, one or both longitudinal ends of the inner wall 4 of the sleeve may comprise one or more cut out sections to provide a base rest (not shown). Suitable cut out sections 38 are illustrated by a dashed  
20 line in figure 3.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and  
25 which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification  
30 (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination,

except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including  
5 any accompanying claims, abstract and drawings), may be  
replaced by alternative features serving the same,  
equivalent or similar purpose, unless expressly stated  
otherwise. Thus, unless expressly stated otherwise, each  
feature disclosed is one example only of a generic series  
10 of equivalent or similar features.

The invention is not restricted to the details of the  
foregoing embodiment(s). The invention extend to any novel  
one, or any novel combination, of the features disclosed  
15 in this specification (including any accompanying claims,  
abstract and drawings), or to any novel one, or any novel  
combination, of the steps of any method or process so  
disclosed.

## Claims

1. A tubular carton sleeve comprising a first sheet superimposed at least in part on a second sheet, said first sheet providing an inner wall of said sleeve and said second sheet providing an outer wall of said sleeve, first and second opposing ends of said first and second sheets being interengaged to provide a join, wherein at said join, the first end of said inner wall is in a face to face relationship with the second end of said inner wall and the first end of said outer wall is in a face to face relationship with the second end of said outer wall.
2. A tubular carton sleeve according to claim 1, in which the inner wall at the first end comprises a first marginal flange extending along a portion of the edge thereof.
3. A tubular carton sleeve according to claim 1 or claim 2, in which the inner wall at the second end comprises a second marginal flange extending along a portion of the edge thereof.
4. A tubular carton sleeve according to any preceding claim, in which the second ends of the first sheet and the second sheet are connected together by means of a fold line.
5. A tubular carton sleeve according to claim 4, in which the second marginal flange of the inner wall is provided by a cut out section of the outer wall extending along a portion of the fold line.



6. A tubular carton sleeve according to any preceding claim, in which the shape and dimensions of the first marginal flange correspond with the shape and dimensions of the cut out section of the outer wall.
7. A tubular carton sleeve according to claim 6, in which when the ends of the sheets are interengaged to form the join, the first marginal flange fits into the cut out section of the outer wall and the edge of the first marginal flange abuts the cut edge of the outer wall.
8. A tubular carton sleeve according to claim 3, in which the section of the edge of the first end of the inner wall which does not comprise the first marginal flange abuts the section of the edge of the second end of the inner wall which does not comprise the second marginal flange, when the ends of the sheets are interengaged.
9. A tubular carton sleeve according to any preceding claim, in which the first and second marginal flanges extend along the majority of the length of the edges of the first and second ends of the inner wall.
10. A tubular carton sleeve according to any preceding claim, in which when the ends of the first and second sheets are joined together to form the sleeve, the internal surface of the second marginal flange is in face to face relationship with the external surface of the inner wall.

11. A tubular carton sleeve according to any preceding claim, in which when the first and second sheets are superimposed on one another, the first end of the second sheet extends beyond the first end of the first sheet.
12. A tubular carton sleeve according to any preceding claim, in which the first end of the second sheet extends beyond the first marginal flange.
13. A tubular carton sleeve according to any preceding claim, in which when the first and second sheets are joined together to form the sleeve, the section of the outer wall which extends beyond the inner wall is in a face to face relationship with the second end of the outer wall.
14. A tubular carton sleeve according to claim 13, in which the interior surface of the first end of the outer wall is in face to face relationship with the exterior surface of the second end of the outer wall.
15. A tubular carton sleeve according to any preceding claim, in which the first and second sheets are substantially the same length.
16. A tubular carton sleeve according to any preceding claim, in which the first and/or second sheet comprises a further marginal flange extending along at least part of the longitudinal edge thereof.

17. A tubular carton sleeve according to claim 16, in which the further marginal flange is folded over during assembly of the sleeve.

5 18. A tubular carton sleeve according to claim 16, in which the further marginal flange may be provided along at least part of the longitudinal edge of the first and/or second sheet in order to provide a protrusion upon which a base can rest.

10

19. A tubular carton sleeve according to any one of claims 16 to 18, in which the further marginal flange may be provided by a single continuous tab.

15 20. A tubular carton sleeve according to any one of claims 16 to 18, in which the further marginal flange may be provided by a series of smaller tabs, spaced apart from one another.

20 21. A tubular carton sleeve according to any one of claims 1 to 15, in which a protrusion upon which a base may rest, may be provided by one or more cut-out sections in the inner wall of the sleeve.

25 22. A tubular carton sleeve according to claim 21, in which the cut-out sections providing the base rest are located in the region of an end of the sleeve.

30 23. A tubular carton sleeve according to claim 21 or claim 22, in which the cut-out sections providing the base rest are generally longitudinal in shape.

24. A tubular carton sleeve according to any one of claims 21 to 23, in which the cut-out sections providing the base rest extend about a substantial length of the inner periphery of the sleeve.
- 5 25. A tubular carton sleeve substantially as described herein, with reference to and as shown in the accompanying drawings.
- 10 26. A tubular carton comprising a tubular carton sleeve according to any preceding claim.
- 15 27. A tubular carton according to claim 26, in which the join is provided by interengaging the first and second ends of the inner wall and the first and second ends of the outer wall.



INVESTOR IN PEOPLE

Application No: GB 0012342.2  
Claims searched: 1-27

Examiner: Michael Young  
Date of search: 12 November 2001

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B8P (PE3, PJ) B8P (DCA2)

Int Cl (Ed.7): B65D 3/22

Other: ONLINE: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2298855 A (RENAISSANCE PACKAGING DESIGN) whole document relevant.	1,2,3 at least
X	GB 2038276 A (WADDINGTONS LTD.) whole document relevant.	1,2,3 at least
X	GB 1600479 (WADDINGTONS) whole document relevant.	1,2,3 at least
X	EP 1000866 A2 whole document relevant.	1,2,3 at least
X	WPI Abstract Accession Number: 1980-B2160C [06] (HENKEL) (6/2/80) & EP 0007539 A1. See translated abstract & figures.	1,2,3 at least
X	WPI Abstract Accession Number: 1983-771577 [39] (MASCH) (22/9/83) & DE 3208682 A1. See translated abstract & figures.	1,2,3 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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